

Dr. Qi Liao

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EDUCATION	University of Notre Dame Ph.D., Computer Science and Engineering (CSE)	Notre Dame, Indiana 2011
	University of Notre Dame M.S., Computer Science and Engineering (MSCSE)	Notre Dame, Indiana 2008
	Hartwick College B.S., Computer Science (major), Mathematics (minor) Graduated summa cum laude and distinction in the major	Oneonta, New York 2005
CERTIFICATIONS	Certified Ethical Hacker, EC-Council	
APPOINTMENTS	Central Michigan University - Professor of Computer Science - Associate Professor of Computer Science - Assistant Professor of Computer Science	Mt. Pleasant, Michigan 2019 - present 2016 - 2019 2011 - 2016
	Argonne National Laboratory (ANL) - Guest Research Faculty	Argonne, Illinois 2018
	United States Air Force Research Laboratory (AFRL) - American Society for Engineering Education (ASEE) Fellow	Rome, New York 2014
	IBM Research - Visiting Research Scientist	Beijing, China 2010
	University of Notre Dame Department of Computer Science and Engineering - Graduate Assistant	Notre Dame, Indiana July 2005 - June 2011
	Hartwick College Center for Learning and Teaching with Technology (CLTT) - Information Technology Specialist	Oneonta, New York 2003 - 2004
RESEARCH INTERESTS	Computer Security, Anomaly Detection, AI/Machine Learning, Visual Analytics, Economics and Game Theory of Networks and Cybersecurity.	

RESEARCH AWARD	Emerald Literati Network Awards for Excellence – 2017 Outstanding Paper for Information and Computer Security.
	IEEE - Best Session Paper. Presented at the IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA'16).
	Winner of the College of Science & Technology (CST) Award for Outstanding Research at Central Michigan University, 2015.
	Nomination for the Provost's Award for Outstanding Research and Creative Activity at Central Michigan University, 2014.
	IEEE Visual Analytics Science and Technology (VAST) Mini Challenge Two Award: "Good Adaptation of Graph Analysis Techniques", Seattle, Washington, October 14-19, 2012.
	Winner of the 2011 Center for Research Computing (CRC) Award for Computational Sciences and Visualization, University of Notre Dame, May 2011.
	Nomination for the annual Research Assistant Award of Computer Science and Engineering, University of Notre Dame, 2010 and 2011.
TEACHING AWARD	Second Prize Winner of the Third National Security Innovation Competition ¹ (NSIC'09), MITRE facility, Colorado Springs, Colorado, May 2009.
	USENIX – The Advanced Computing Systems Association – BEST PAPER AWARD. Presented at the 22nd Large Installation System Administration Conference (LISA'08), San Diego, California, November 2008.
	Ateyeh Outstanding Graduate Teaching Assistant Award, Department of Computer Science & Engineering, University of Notre Dame, 2009.
SERVICE AWARD	Five-year service award, Central Michigan University, 2016.
GRANTS - AWARDED	• Proposal title: Computer Science Innovations and Collaborations in Outreach, Research, and Teaching (CSICORT): Envisioning the Future of Computer Science in 2030. Co-PI, contribute to Cybersecurity major program. Total funding: \$301,120, 2020 - 2022. • EC-Council Faculty Scholarships, 2023. • CMU Faculty Research and Creative Endeavors (FRCE) Premier Display Grant, "Harnessing Uncertainty in Vulnerability Market", the 27th IEEE International Conference on Computer Communications and Networks (ICCCN), 2018. • CMU Faculty Research and Creative Endeavors (FRCE) Premier Display Grant, "Spatial-Temporal Anomaly Detection using Security Visual Analytics via Entropy Graph and Eigen Matrix", IEEE 15th Intl Conf on Dependable, Autonomic and Secure Computing (DASC), 2017. • NSF grant to participate in SEED workshop to develop hands-on laboratory exercises for computer and information security education, Syracuse University, NY, June 4-6 2016. • CMU Faculty Research and Creative Endeavors (FRCE) Premier Display Grant, "An Economic Alternative to Improve Cybersecurity of E-government and Smart Cities", 17th Annual International Conference on Digital Government Research (dg.o 2016), 2016.

¹Sponsored by Department of Homeland Security, National Homeland Defense Foundation, Colorado Homeland Defense Alliance, etc.

- United States Air Force Visiting Faculty Research Program (VFRP) Faculty Extension Grant Award, proposal title: “Whitepaper: Summer Faculty Extension Grant Program. Large-scale Network Anomaly Analysis Using Dynamic Graph Mining and Visualization”, PI: Qi Liao, Funding agency: United States Air Force Information Institute, 2014 - 2015.
- Air Force Summer Faculty Fellowship Program (SFFP), proposal title: Large-scale Network Anomaly Analysis Using Dynamic Graph Mining and Visualization, PI: Qi Liao, Funding agency: Air Force Office of Scientific Research (AFOSR) and American Society for Engineering Education (ASEE), 2014.
- CMU Faculty Research and Creative Endeavors (FRCE) Premier Display Grant, “Is More P2P Always Bad for ISPs? An Analysis of P2P and ISP Business Models.”, IEEE 23rd International Conference on Computer Communication and Networks (ICCCN) - Hotdata Workshop, 2014.
- Early CAREER Award, Principle Investigator (PI), proposal topic: “Smart Network Management through Visual Anomaly Analysis for Dynamic Graphs”, Office of Research and Sponsored Programs (ORSP), Central Michigan University, 2012-2014.
- CMU Faculty Research and Creative Endeavors (FRCE) Premier Display Grant, “Scalable network traffic visualization using compressed graphs”, IEEE International Conference on Big Data (BigData 2013), 2013.
- CMU Faculty Research and Creative Endeavors (FRCE) Premier Display Grant, “Intelligent Network Management Using Graph Differential Anomaly Visualization”, IEEE/IFIP Network Operations and Management Symposium (NOMS '12), 2012.
- ACM SIGCOMM Award for travel grants, “Visualizing Anomalies in Sensor Networks”, ACM Special Interest Group on Data Communication (SIGCOMM '11), August 2011.
- ACM Scholarship, “Visualizing Dynamics and Similarity in Enterprise Networks”, the 7th International Symposium on Visualization for Cyber Security (VizSec'10), September 2010.
- Conference Presentation Grant (CPG), Graduate Student Union, University of Notre Dame, “Visual Exploration and Analysis on Host, Users and Applications in Enterprise Networks (VizSec'09)”, October 2009.
- NSF² grant, Illinois Wireless Summer School, August 2009.
- NSF³ grant, Trusted Infrastructure Workshop (TIW '09): Advanced Summer School on Architectures for Trustworthy Computing, June 2009.
- USENIX Association grant, “ENAVis: Enterprise Network Activities Visualization”, the 22nd Large Installation System Administration Conference (LISA '08), November 2008.
- USENIX Association grant, the 5th USENIX Symposium on Networked Systems Design and Implementation (NSDI '08), April 2008.

FELLOWSHIP / SCHOLARSHIP

- American Society for Engineering Education (ASEE) Fellowship, U.S. Air Force Summer Faculty Fellowship Program (SFFP) 2014
- University of Notre Dame Fellowship 2005
- Hartwick College International Student Full Scholarship 2002-2005
- John Christopher Hartwick (founder) Scholarship Nominee 2005
- Hartwick College Faculty Scholar 2004-2005
- First Recipient of Hartwick College President's Global Fund Award 2004-2005

OTHER HONORS AND AWARDS

- Best Graduate Regression, MINEND, University of Notre Dame 2006
- Graduation with the *Distinction in Computer Science* and *summa cum laude* from Hartwick College 2005
- The Computer and Information Science Department Award for Excellence in Com-

²Sponsored by NSF, UIUC, ACM SIGMOBILE, Microsoft Research, etc.

³Sponsored by NSF, NSA, Carnegie Mellon Cylab, IBM, etc.

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| puter Science, Hartwick College | 2004-2005 |
| • Dean's List, every semester of each academic year, Hartwick College | 2002-2005 |
| • Active International Club Member Award, Hartwick College | 2002-2003 |

HONOR SOCIETIES

Kappa Mu Epsilon

– the National **Mathematics** Honor Society

Upsilon Pi Epsilon

– the International Honor Society for the **Computing and Information** Disciplines

Tau Beta Pi

– the National **Engineering** Honor Society

PUBLICATIONS

JOURNALS

- [1] Zhen Li and Qi Liao. Preventive portfolio against data-selling ransomware - a game theory of encryption and deception. *Computers & Security (Elsevier)*, 116, Article 102644:1–11, May 2022.
- [2] Zhen Li and Qi Liao. Game theory of data-selling ransomware. *Journal of Cyber Security and Mobility*, 10(1):65–96, March 2021.
- [3] Lei Shi, Qi Liao, Hanghang Tong, Yifan Hu, Chaoli Wange, Chuang Lin, and Weihong Qian. Oniongraph: Hierarchical topology+attribute multivariate network visualization. *Visual Informatics, Elsevier*, 4(1):43–57, March 2020.
- [4] Zhen Li, Qi Liao, and Aaron D. Striegel. A game-theoretic analysis on the economic viability of mobile content pre-staging. *Wireless Networks (Springer)*, 26(1):667–683, January 2020.
- [5] Xiaoying Yu and Qi Liao. Understanding user passwords through password prefix and postfix (p3) graph analysis and visualization. *International Journal of Information Security (Springer)*, 18(5):647–663, October 2019.
- [6] Tao Zhang and Qi Liao. Dynamic link anomaly analysis for network security management. *Springer Journal of Network and Systems Management*, 27(3):600–624, July 2019.
- [7] Qi Liao, Ting Li, and Benjamin A. Blakely. Anomaly analysis and visualization for dynamic networks through spatiotemporal graph segmentations. *Journal of Network and Computer Applications, Elsevier*, 124:63–79, December 2018.
- [8] Zhen Li and Qi Liao. Economic solutions to improve cybersecurity of governments and smart cities via vulnerability markets. *Government Information Quarterly*, 35(1):151–160, January 2018.
- [9] Qi Liao and Ting Li. Effective network management via dynamic network anomaly visualization. *International Journal of Network Management, John Wiley & Sons, Ltd.*, 26(6):461–491, Nov 2016.
- [10] Ian Turk, Matthew Sinda, Xin'An Zhou, Jun Tao, Chaoli Wang, and Qi Liao. Exploration of linked anomalies in sensor data for suspicious behavior detection. *International Journal of Software and Informatics*, 10(3), October 2016.
- [11] Xiaoying Yu and Qi Liao. User password repetitive patterns analysis and visualization. (**Emerald Publishing 2017 Award for Excellence**). *Information and Computer Security*, 24(1):93–115, 2016.

- [12] Lei Shi, Chen Wang, Zhen Wen, Huamin Qu, Chuang Lin, and Qi Liao. 1.5D egocentric dynamic network visualization. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 21(5):624–637, May 2015.
- [13] Zhen Li and Qi Liao. Network pricing: can both ISP and P2P benefit? *International Journal of Network Management, John Wiley & Sons, Ltd.*, 24(6):433–449, November/December 2014.
- [14] Zhen Li and Qi Liao. Toward a monopoly botnet market. *Information Security Journal: A Global Perspective - Cybercrimes, Secure Emerging Web Environments, and Digital Forensics, Taylor & Francis.*, 23(4-6):159–171, October 2014.
- [15] Tao Zhang, Qi Liao, Lei Shi, and Weishan Dong. Analyzing spatiotemporal anomalies through interactive visualization. *Informatics*, 1(1):100–125, June 2014.
- [16] Qi Liao and Zhen Li. Portfolio optimization of computer and mobile botnets. *Springer International Journal of Information Security*, 13(1):1–14, February 2014.
- [17] Qi Liao, Lei Shi, and Chen Wang. Visual analysis of large-scale network anomalies. *IBM Journal of Research and Development*, 57(3/4):13:1–13:12, May-July 2013, 10.1147/JRD.2013.2249356.
- [18] Lei Shi, Qi Liao, and Chuang Lin. Survey on transformation-based large graph visualization. *Journal of Computer-Aided Design & Computer Graphics*, 25(3):304–311, March 2013.
- [19] Qi Liao, Zhen Li, and Aaron Striegel. Could firewall rules be public – a game theoretical perspective. *Security and Communication Networks, Wiley InterScience*, 5(2):197–210, January 2012.
- [20] John Byers, Jeffrey Mongul, Qi Liao, and et al. Report on the sigcomm 2011 conference. *ACM SIGCOMM Computer Communication Review (CCR)*, 42(1), January 2012.
- [21] Zhen Li, Qi Liao, Andrew Blaich, and Aaron Striegel. Fighting botnets with economic uncertainty. *Security and Communication Networks, Wiley InterScience*, 4(10):1104–1113, October 2011.
- [22] Qi Liao, Lei Shi, Yuan He, Rui Li, Zhong Su, Aaron Striegel, and Yunhao Liu. Visualizing anomalies in sensor networks. *ACM Computer Communication Review (CCR)*, 41(4):460–461, August 2011.
- [23] Qi Liao, Andrew Blaich, Dirk VanBruggen, and Aaron Striegel. Managing networks through context: graph visualization and exploration. *Computer Networks, Special Issue: Managing Emerging Computing Environments, Elsevier*, 54(16):2809–2824, November 15 2010.
- [24] Qi Liao, David A. Cieslak, Aaron D. Striegel, and Nitesh V. Chawla. Using selective, short-term memory to improve resilience versus DDoS exhaustion attacks. *Security and Communication Networks, Wiley InterScience*, 1(4):287–299, July/August 2008.
- [25] C. Mano, A. Blaich, Q. Liao, Y. Jiang, D. Cieslak, D. Salyers, and A. Striegel. RIPPS: Rogue identifying packet payload slicer detecting unauthorized wireless hosts through network traffic conditioning. *ACM Transactions on Information and System Security (TISSEC)*, 11(2):1–23, May 2008.

CONFERENCE PROCEEDINGS

- [26] Zhen Li and Qi Liao. How much should i double spend my bitcoin? game theory of quantum mining. In *The 15th International Conference on Game Theory and AI for Security (GameSec)*, pages 87–106, New York, USA, October 16-18 2024.
- [27] Jonathan Gregory and Qi Liao. Autonomous cyberattack with security-augmented generative artificial intelligence. In *IEEE International Conference on Cyber Security and Resilience (CSR)*, pages 270–275, London, UK, September 2-4 2024.
- [28] Zhen Li and Qi Liao. Is quantum computing the bitcoin terminator? In *Proceedings of the 30th Americas Conference on Information Systems (AMCIS)*, pages 1–10, Salt Lake City, Utah, August 15-17 2024.
- [29] Zhen Li and Qi Liao. Does cyber-insurance benefit the insured or the attacker? – a game of cyber-insurance. In *14th Conference on Decision and Game Theory for Security (GameSec)*, Avignon, France, October 18-20 2023.
- [30] Jonathan Gregory and Qi Liao. Adversarial spam generation using adaptive gradient-based word embedding perturbations. In *IEEE International Conference on Artificial Intelligence, Blockchain, and Internet of Things, (AIBThings)*, pages 1–5, Central Michigan University, MI, September 16-17 2023.
- [31] Zhen Li and Qi Liao. Game theory of cheating autonomous vehicles. In *IEEE International Conference on Mobility, Operations, Services and Technologies (MOST)*, pages 231–236, Detroit, MI, May 17-19 2023.
- [32] Zhen Li and Qi Liao. Ransomware 2.0: To sell, or not to sell. a game-theoretical model of data-selling ransomware. In *Proceedings of the 15th International Conference on Availability, Reliability and Security (ARES) - 9th ACM International Workshop on Cyber Crime (IWCC)*, number 59, pages 1–9, Dublin, Ireland, August 25-28 2020.
- [33] Bhargav Kuchipudi, Ravi Teja Nannapaneni, and Qi Liao. Adversarial machine learning for spam filters. In *Proceedings of the 15th International Conference on Availability, Reliability and Security (ARES) - 15th ACM International Workshop on Frontiers in Availability, Reliability and Security (FARES)*, number 38, pages 1–6, Dublin, Ireland, August 25-28 2020.
- [34] Zhen Li and Qi Liao. Harnessing uncertainty in vulnerability market. In *Proceedings of the 27th IEEE International Conference on Computer Communications and Networks (ICCCN)*, Hangzhou, China, July 30 - August 2 2018.
- [35] Zhen Li and Qi Liao. Toward socially optimal bitcoin mining. In *Proceedings of the 5th IEEE International Conference on Information Science and Control Engineering (ICISCE)*, Zhengzhou, China, July 20-22 2018.
- [36] Zhen Li and Qi Liao. Captcha: Machine or human solvers? a game-theoretical analysis. In *Proceedings of the 5th IEEE International Conference on Cyber Security and Cloud Computing (CSCloud)*, Shanghai, China, June 22-24 2018.
- [37] Matthew Sinda and Qi Liao. Spatial-temporal anomaly detection using security visual analytics via entropy graph and eigen matrix. In *Proceedings of the IEEE 15th International Conference on Dependable, Autonomic and Secure Computing (DASC)*, Orlando, Florida, November 6-11 2017.

- [38] Ian Turk, Matthew Sinda, Xin'An Zhou, Jun Tao, Chaoli Wang, and Qi Liao. Exploration of linked anomalies in sensor data for suspicious behavior detection. In *ACM Workshop on Data mining meets Visual Analytics at big data era (DAVA) in conjunction with CIKM*, Indianapolis, IN, October 28 2016.
- [39] Matthew Sinda, Ian Turk, Jun Tao, Qi Liao, Chaoli Wang, and Lei Shi. Dynamic employee and sensor visualization. In *IEEE Conference on Visual Analytics Science and Technology (VAST) Challenge Workshop, VisWeek'16*, Baltimore, MD, October 23-28 2016.
- [40] Ting Li and Qi Liao. Dynamic networks analysis and visualization through spatiotemporal link segmentation. **Best Session Paper**. In *Proceedings of the IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA)*, pages 209–214, Chengdu, China, July 5-7 2016.
- [41] Zhen Li and Qi Liao. An economic alternative to improve cybersecurity of e-government and smart cities. In *Proceedings of the 17th Annual International Conference on Digital Government Research (dg.o 2016)*, pages 455–464, Shanghai, China, June 8-10 2016. Digital Government Society (DGS).
- [42] Zhen Li, Qi Liao, and Aaron D. Striegel. On the economics of mobile content pre-staging. In *IEEE Conference on Computer Communications (INFOCOM) - The Fifth IEEE Workshop on Smart Data Pricing (SDP)*, San Francisco, April 11 2016.
- [43] Ting Li and Qi Liao. Dynamic dinofun world communication graph. In *IEEE Conference on Visual Analytics Science and Technology (VAST) Challenge Workshop, VisWeek'15*, pages 163–164, Chicago, IL, October 25-30 2015.
- [44] Qi Liao, Zhen Li, and Aaron Striegel. Is more P2P always bad for ISPs? an analysis of P2P and ISP business models. In *Proceedings of the IEEE 23rd International Conference on Computer Communication and Networks (ICCCN) - the First International Workshop on Hot Topics in Big Data and Networking (HotData I)*, pages 1–6, Shanghai, China, August 4-7 2014.
- [45] Qi Liao. Network graph anomaly analysis and security visualization (poster). In *AFCEA Command, Control, Communications, Cyber and Intelligence (C4I) Technology Review Days and Exposition*, Utica, NY, June 10-11 2014.
- [46] Tao Zhang, Qi Liao, and Lei Shi. Bridging the gap of network management and anomaly detection through interactive visualization. In *Proceedings of the IEEE Pacific Visualization Symposium (PacificVis)*, pages 253–257, Yokohama, Japan, March 4-7 2014.
- [47] Lei Shi, Qi Liao, Hanghang Tong, Yifan Hu, Yue Zhao, and Chuang Lin. Hierarchical focus+context heterogeneous network visualization. In *Proceedings of the IEEE Pacific Visualization Symposium (PacificVis)*, pages 89–96, Yokohama, Japan, March 4-7 2014.
- [48] Lei Shi, Qi Liao, Xiaohua Sun, Yarui Chen, and Chuang Lin. Scalable network traffic visualization using compressed graphs. In *Proceedings of IEEE International Conference on Big Data (BigData 2013)*, pages 606–612, Santa Clara, CA, October 6-9 2013.
- [49] Tao Zhang, Qi Liao, and Lei Shi. Generic anomaly visualization for daily network security administration - VAST 2013 mini challenge 3. In *Proceedings of the IEEE Conference on Visual Analytics Science and Technology (VAST) Challenge Workshop, VisWeek'13*, Atlanta, GA, October 13-18 2013.

- [50] Lei Shi, Qi Liao, Xiaohua Sun, Yarui Chen, and Chuang Lin. Visualize large-scale networks with structural equivalence (poster paper). In *the 4th Visualization Workshop*, Beijing, China, July 12-13 2013.
- [51] Tao Zhang, Qi Liao, Lei Shi, and Weishan Dong. Spatiotemporal anomaly visualization for large-scale dynamic networks (poster paper). In *the 4th Visualization Workshop*, Beijing, China, July 12-13 2013.
- [52] Qi Liao, Lei Shi, and Chuang Lin. Scalable network traffic visualization by structural equivalence grouping. In *International Network for Social Network Analysis Conference (INSNA)*, Xi'an, China, July 12-15 2013.
- [53] Tao Zhang, Gongzhu Hu, and Qi Liao. Analysis of offense tactics of basketball games using link prediction. In *Proceedings of the 26th IEEE/ACIS International Conference on Computer and Information Science*, pages 207–212, Niigata, Japan, June 16-20 2013.
- [54] Qi Liao, Lei Shi, and Xiaohua Sun. Anomaly analysis and visualization through compressed graphs (poster abstract). In *Proceedings of the IEEE Symposium on Large-Scale Data Analysis and Visualization (LDAV '12), VisWeek'12*, Seattle, WA, October 14-15 2012.
- [55] Lei Shi, Qi Liao, and Chunxin Yang. Investigating network traffic through compressed graph visualization - **VAST Mini Challenge AWARD**: Good adaptation of graph analysis techniques. In *Proceedings of the IEEE Conference on Visual Analytics Science and Technology (VAST 2012) Challenge Workshop, VisWeek'12*, Seattle, WA, October 14-19 2012.
- [56] Tao Zhang, Qi Liao, and Lei Shi. 3D anomaly bar visualization for large-scale network - VAST 2012 mini challenge 1. In *Proceedings of the IEEE Conference on Visual Analytics Science and Technology (VAST 2012) Challenge Workshop, VisWeek'12*, pages 291–292, Seattle, WA, October 14-19 2012.
- [57] Qi Liao and Aaron Striegel. Intelligent network management using graph differential anomaly visualization. In *Proceedings of the IEEE/IFIP Network Operations and Management Symposium (NOMS'12)*, pages 1008–1014, Maui, HI, USA, April 16-20 2012.
- [58] Lei Shi, Qi Liao, Yuan He, Rui Li, Aaron Striegel, and Zhong Su. SAVE: Sensor anomaly visualization engine. In *Proceedings of the IEEE Conference on Visual Analytics Science and Technology (VAST 2011), VisWeek'11*, pages 201–210, Providence, RI, October 23-28 2011.
- [59] Qi Liao, Lei Shi, Weihong Qian, and Zhong Su. Network security and anomaly visualization - vast 2011 mini challenge #2. In *Proceedings of the IEEE Conference on Visual Analytics Science and Technology (VAST 2011) Compendium, VisWeek'11*, Providence, RI, October 23-28 2011.
- [60] Qi Liao, Lei Shi, Yuan He, Rui Li, Zhong Su, Aaron Striegel, and Yunhao Liu. Visualizing anomalies in sensor networks (demo abstract). In *Proceedings of the ACM Special Interest Group on Data Communication (SIGCOMM '11)*, Toronto, ON, Canada, August 15-19 2011.
- [61] Qi Liao, Lei Shi, Yuan He, Zhong Su, and Aaron Striegel. Spatiotemporal visual analysis of sensor networks in the wild (poster paper). In *IEEE Pacific Visualization Symposium (PacificVis '11)*, Hong Kong, March 1-4 2011.

- [62] Qi Liao, Aaron Striegel, and Nitesh Chawla. Visualizing graph dynamics and similarity for enterprise network security and management. In *ACM Proceeding of the 7th International Symposium on Visualization for Cyber Security (VizSec '10)*, in conjunction with RAID'10, pages 34–46, Ottawa, Ontario, Canada, September 14 2010.
- [63] Zhen Li, Qi Liao, and Aaron Striegel. Toward a socially optimal wireless spectrum management. In *The Fifth IEEE Workshop on Networking Technologies for Software-Defined Radio and White Space, held in Conjunction with IEEE SECON 2010*, pages 1–6, Boston, MA, June 21-22 2010.
- [64] Jordan Brindza, Jessica Szveda, Qi Liao, Yingxin Jiang, and Aaron Striegel. Wiilab: Bringing together the Nintendo wiimote and MATLAB. In *Proceeding of 39th ASEE/IEEE International Conference on Frontiers In Education (FIE '09), Session W1J: Laboratory Innovations to Promote Learning*, pages 1373–1378, San Antonio, Texas, October 18-21 2009.
- [65] Qi Liao, Zhen Li, and Aaron Striegel. Information game of public firewall rules. In *Fifth Workshop on Secure Network Protocols (NPSEC '09) in conjunction with the 17th IEEE International Conference on Network Protocols (ICNP '09)*, pages 25–30, Princeton, NJ, October 13 2009.
- [66] Qi Liao, Dirk VanBruggen, Andrew Blaich, and Aaron Striegel. Visual exploration and analysis on hosts, users and applications in enterprise networks (poster paper). In *The 6th International Workshop on Visualization for Cyber Security (VizSec '09) co-located with IEEE VisWeek 2009*, Atlantic City, NJ, October 11 2009.
- [67] Qi Liao, Andrew Blaich, Aaron Striegel, and Douglas Thain. ENAVIS: Enterprise network activities visualization. In *Proceedings of the USENIX 22nd Large Installation System Administration Conference (LISA '08)*, pages 59–74, San Diego, CA, November 9-14 2008. **USENIX Best Paper Award.**
- [68] Andrew Blaich, Qi Liao, Aaron Striegel, and Douglas Thain. Simplifying network management with lockdown. In *Symposium on Usable Privacy and Security (SOUPS '08)*, Pittsburgh, PA, July 23-25 2008.
- [69] Zhen Li, Qi Liao, and Aaron Striegel. Botnet economics: Uncertainty matters. In *Proceeding of the 7th Workshop on the Economics of Information Security (WEIS '08)*, Hanover, New Hampshire, June 25-28 2008.
- [70] Chad D. Mano, David C. Salyers, Qi Liao, Andrew Blaich, and Aaron Striegel. SAABCOT: Secure application-agnostic bandwidth conservation techniques (invited paper). In *Proceedings of IEEE Fourth International Conference on Broadband Communications, Networks, and Systems (BroadNets '07)*, pages 544–550, Raleigh, NC, September 10-14 2007.
- [71] Andrew Blaich, Qi Liao, Brian Sullivan, Greg Allan, Aaron Striegel, and Douglas Thain. Lockdown: Distributed policy analysis and enforcement within the enterprise network (poster paper). In *The 16th USENIX Security Symposium*, Boston, MA, August 6-10 2007.

NATIONAL COMPETITION

- [72] Andrew Blaich, Qi Liao, Aaron Striegel, and Douglas Thain. Enavis: Enterprise network activities visualization – second prize winner. In *The Third Annual National Security Innovation Competition (NSIC'09)*, MITRE facility, Colorado Springs, CO, 2009.

BOOK CHAPTERS

- [73] Zhen Li and Qi Liao. *Decision and Game Theory for Security*, volume 14908 of *Lecture Notes in Computer Science*, chapter How Much Should I Double Spend My Bitcoin? Game theory of Quantum Mining, pages XVIII, 328. Springer, ISBN: 9783031748349, October 2024.
- [74] Zhen Li and Qi Liao. *Decision and Game Theory for Security*, volume 14167 of *Lecture Notes in Computer Science*, chapter Does Cyber-Insurance Benefit the Insured or the Attacker? – A Game of Cyber-Insurance, pages XXIX, 390. Springer, ISBN: 9783031506697, December 29 2023.
- [75] Lei Shi, Yifan Hu, and Qi Liao. *Big Data of Complex Networks*, chapter Big Data Visualization for Large Complex Networks. CRC Press, Taylor & Francis Group, ISBN: 9781498723619, August, 2016.
- [76] Zhen Li, Qi Liao, and Aaron Striegel. *Managing Information Risk and the Economics of Security (Hardcover)*, Editor: *Eric M. Johnson*, chapter Botnet Economics: Uncertainty Matters, pages 245–267. Springer, ISBN: 0387097619, 2009.

TECHNICAL REPORTS

- [77] Keesook J. Han, Tao Zhang, and Qi Liao. Data stream mining based dynamic link anomaly analysis using paired sliding time window data. Final Technical Report. Approved for Public Release; Distribution Unlimited. 88ABW-2014-5054, U.S. Air Force Research Laboratory (AFRL), Oct. 31 2014.
- [78] Lei Shi, Qi Liao, and Xiaohua Sun. Graph visualization through collaborative node grouping. Technical Report ISCAS-VIS-12-1, Chinese Academy of Sciences, 2012.
- [79] Zhen Li, Qi Liao, and Aaron Striegel. Toward a socially optimal wireless spectrum management. TECH REPORT TR-2010-01, University of Notre Dame, February 2010.
- [80] A. Blaich, Q. Liao, B. Sullivan, A. Striegel, D. Thain, and T. Wright. Lockdown: Simplifying enterprise network management with local context. TECH REPORT TR-2007-05, University of Notre Dame, November 2007.

OTHER CONFERENCE PRESENTATIONS

- [81] Jonathan Gregory and Qi Liao. Autonomous cyberattack with security-augmented generative artificial intelligence. In *Annual Student Creative & Research Endeavors Exhibition (SCREE)*, Central Michigan University, April 2 2025.
- [82] Matthew Sinda and Qi Liao. Spatial temporal anomaly detection. In *the 24th Annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 19 2017.
- [83] Ting Li and Qi Liao. Dynamic network analysis through graph visualization and network overviews. In *The 23rd Annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 20 2016.
- [84] Xiaoying Yu and Qi Liao. Password analysis and visualization (prefix and suffix). In *The 23rd Annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 20 2016.

- [85] Ting Li and Qi Liao. Network anomaly visualization tool. In *The 22nd Annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 22 2015.
- [86] Xiaoying Yu and Qi Liao. Password analysis and visualization (repetitive patterns). In *The 22nd Annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 22 2015.
- [87] Qi Liao. Visual analytics for dynamic network graph link anomalies. In *The Air Force Research Laboratory Poster Exposition*, Bldg 3 Urtz Conference Room, Rome, NY, July 15 2014.
- [88] Tao Zhang and Qi Liao. Bridging the gap of network management and anomaly detection through interactive visualization. In *The 21st annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 16 2014.
- [89] Tao Zhang and Qi Liao. Spatiotemporal anomaly visualization for large-scale dynamic networks. In *The 20th annual Student Research & Creative Endeavors Exhibition (SRCEE)*, Central Michigan University, April 17 2013.

PATENT

- [90] Qi Liao, Lei Shi, Li Tan, Xiaoxiao Lian, and Zhong Su. A method for diagnosing large-scale networks using differential contour maps. *IBM Patent CA820100499*, submitted in February 2011.

THESIS

- [91] Qi Liao. *Smarter Enterprise Network Security Management Through Intelligent and Interactive Visual Analytics*. Ph.d. dissertation, University of Notre Dame, May 2011. Advisor: Dr. Aaron Striegel, Committee: Dr. Aaron Striegel, Dr. Nitesh Chawla, Dr. Douglas Thain, Dr. Marina Blanton, Dr. Michael Villano.
- [92] Qi Liao. Improving network insight through local context gathering and analysis. Master thesis, University of Notre Dame, August 2007. Adviser: Dr. Aaron Striegel, Committee: Dr. Douglas Thain, Dr. Nitesh Chawla.

Full text PDFs are available at <http://people.cst.cmich.edu/liao1q/publications.shtml>.

TEACHING

As a full-time faculty at CMU with standard teaching load of three courses per semester, I have taught dozens of undergraduate and graduate courses ranging from core computer science, information technologies and cybersecurity.

CPS 180 Principles of Computer Programming

- Fall 2011, Fall 2012, Fall 2014, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Spring 2022

CPS 181 Introduction to Data Structures

- Fall 2013, Spring 2015, Fall 2022

CPS 210 Assembly Language and Computer Organization

- Spring 2016, Fall 2016, Spring 2017, Fall 2017

CPS 240 Object Oriented Programming

- Spring 2015, Fall 2015, Spring 2021, Fall 2021, Spring 2023, Spring 2024, Fall 2024

CPS 280S Alternative Programming Languages (Python)

- Fall 2014, Spring 2015

CPS 333 Introduction to Computer Security and Cryptography

- Spring 2023, Spring 2024

CPS 340 Advanced Data Structures and Algorithms

- Spring 2020, Fall 2020, Fall 2022

CPS 373 Network Security

- Fall 2023, Fall 2024

ITC 466 System Administration and Automation

- Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014

CPS 475 Software, Database, and Operating System Security

- Spring 2024

ITC 520 Foundations of Computer Security

- Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017, Fall 2018, Fall 2019, Fall 2020, Spring 2022

CPS 497 Independent Study

- Summer 2022

CPS 597 Independent Study

- Summer 2013, Summer 2015, Summer 2016

CPS 691 Research Design and Professional Practice

- Spring 2023, Fall 2023

CPS 697 Independent Study

- Fall 2013, Spring 2014, Fall 2014

CPS 798 Master's Thesis

- Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2015, Spring 2016, Fall 2016, Spring 2017

CPS 691 Graduate Seminar

- Spring 2012, Spring 2014, Spring 2015

Additional Teaching Experience (graduate teaching assistant) at University of Notre Dame

CSE 60111 Complexity and Algorithm

CSE 40232/60232 Software Engineering

CSE 30331 Data Structures

CSE 30264 Computer Networks

CSE 60416 System Interface Design

CSE 40422 Computer System Design

CSE 60771 Distributed Systems

PROFESSIONAL
DEVELOPMENT

List of attended teaching workshops, research proposal related workshops, summer schools, and technological training sessions for professional development.

- NSF Convergence Accelerator Expo, July 27-28, 2022.
- SEED workshop to develop hands-on labs for security education, May 20 - August 15, 2022.
- Michigan Cyber Summit hosted by the state of Michigan and Governor Gretchen Whitmer, October 20-21, 2021.
- Center for Excellence in Teaching and Learning (CETL) workshop: Five Students you Meet in Class SERIES Panel Discussion, Spring 2019.
- Center for Excellence in Teaching and Learning (CETL) workshop: The Five Students You Meet in Class SERIES, The Under-Prepared Student: Addressing Academic Readiness in the Classroom, Spring 2019.
- Deep Learning Workshop, Argonne National Laboratory, IL, January 16-18, 2018.
- Merit Security Summit, Ann Arbor, MI, November 7, 2016.
- NSF SEED workshop for instructors to develop hands-on laboratory exercises for computer and information security education, Syracuse University, NY, June 4-6 2016.
- The CST Active Learning Committee Workshop, “A Brown Bag: Generating Student Buy-in for Active Learning”, CMU Down Science Complex 135, January 6, 2016.
- FaCIT workshop: Using Instructional Design Strategies to Guide Innovative, Flipped Classroom Activities that Enhance Learning, CMU Park Library, February 24, 2015.
- Audio, Video, and Screen Recording Tools to Use A Lot or a Little, CMU Park Library, February 10, 2014,
- Finishing Strong: Key Steps (Now!) to Enhance Your SOS/EOC Results and Bring Your Class to a Successful Close, CMU, November 15, 2013.
- Great Lakes Conference on Teaching and Learning, Mount Pleasant, MI, May 8-10, 2013.
- Queering the Classroom Canvas: Art, the Episteme, and the Pedagogical Politics of Disruption, 12pm, Park Library 413, March 27, 2013.
- TLC Annual Conference: Analyze This! The TLC Responds to Stanley Fish, luncheon session, CMU, February 1, 2013.
- Pearson MyProgrammingLab training session, August 1, 2012.
- External Proposal Writing Workshop, ORSP, CMU, May 8-10, 2012.
- Great Lake Conference on Teaching and Learning. May 9-11, 2012.
- High-Impact Course Design Series (5 of 5), CMU, April 13, 2012.
- iOS - Mobile devices unleashed, CMU, April 10, 2012.
- Documenting and Evaluating Teaching Excellence at CMU: Review and Recommendations for Evidence-Based Evaluation Tools, CMU, March 27, 2012.
- High-Impact Course Design Series (4 of 5), CMU, March 16, 2012.
- Brown Bag Seminar - The Ease of Active Learning (how to engage students), CMU, March 2, 2012.
- High-Impact Course Design Series (3 of 5), CMU, February 24, 2012.
- Best Practices for Reusing Content in Blackboard, CMU, February 15, 2012.
- Apple Textbook Initiative Seminar, CMU, February 10, 2012.
- CAYUSE, web based grants management software system, ORSP, CMU, July 2011.
- Trusted Infrastructure Workshop (TIW '09): Advanced Summer School on Architectures for Trustworthy Computing, CyLab, Carnegie Mellon University, Pittsburgh, PA, June 8-12, 2009.

- Illinois Wireless Summer School, Illinois Center for Wireless Systems (ICWS), Siebel Center for Computer Science, University of Illinois at Urbana-Champaign, IL, August 3-7, 2009.

STUDENT SUPERVISION	Matthew Sinda, MS thesis Ting Li, MS thesis Xiaoying Yu, MS thesis Hesham Salman, MS thesis Tao Zhang, MS thesis Junghyo Lee, MS thesis Qifan Luan, MS thesis Joseph Dessert, Senior Research Capstone Project for Honors Program Jonathan Gregory, Honors contract Srikanth Seelam, Alma Bazarbayeva, Anthony Pochini, CMU New Venture Competition (NVC) Award: 1st Runner Up Pitch Jonathan Gregory, Matthew Rippin, Jeffrey Baird, summer undergraduate research Zhiyuan Cheng, Independent Study Sai Vikram Alladi, Karthik Goud Balusa, Raj Kumar Alaboina, M.S. Computer Science Capstone Project Yarlagadda Dharani Srinivas, Shashank Kumar Reddy Chinthakuntla, Amulya Gunuru, M.S. Information Technology Capstone Projects
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INVITED TALKS	Network Anomaly Analysis Using Visual Mining. Graduate Seminar, Central Michigan University. Network Graph Anomaly Analysis and Visualization. 2014 CyberBAT Technical Exchange Meeting, Information Directorate, Air Force Research Laboratory, Rome, NY. Security Informatics: Addressing Security with Data Mining, Visualization, and Economics. Graduate Seminar, Central Michigan University. Computer Security Visualization and Economics of Security, Mathematics and Computer Science Colloquium Series, Albion College. Manage Network Security via Visualization, Data Mining, and Economics., Graduate Seminar (CPS 691), Central Michigan University, MI. Enterprise Network Activities Analysis: Local Context Collection and Visualization, the Mathematics and Computer Science Colloquium Series, Albion College, MI.
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PROFESSIONAL SERVICES	U.S. Department of Homeland Security (DHS) • Cross-Border Threat Screening and Supply Chain Defense (CBTS) Broad RFP Review 2024 National Science Foundation (NSF) • Panelist for the NSF Secure and Trustworthy Cyberspace (SaTC) program - CORE 2018 • Panelist for the NSF Secure and Trustworthy Cyberspace (SaTC) program - EDUCATION. 2018 Peer Reviewers for Journals and Conferences • IEEE International Conference on Cyber Security and Resilience (CSR), 2025. • Elsevier Journal of Cyber Security and Applications, 2025.
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- The International Journal of Computer and Telecommunications Networking (Elsevier Computer Networks), 2025.
- IEEE International Conference on Cyber Security and Resilience (CSR), 2024.
- Dynamic Games and Applications, Springer, 2024.
- Elsevier Computer & Security, 2023.
- Elsevier Computer & Security, 2022.
- IEEE Networking Letters, 2022.
- Elsevier Computer & Security, 2021.
- IEEE Transactions on Mobile Computing (TOMC), 2021.
- IEEE VIS 2021.
- IEEE Transactions on Mobile Computing (TOMC), 2020.
- Elsevier Computer & Security, 2020.
- ACM Transactions on Multimedia Computing Communications and Applications (TOMM), 2020.
- Elsevier Journal of Expert Systems with Applications, 2019.
- MDPI Information Journal, 2019.
- The 3rd IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), 2018.
- Information Security Journal: A Global Perspective, 2017.
- The 2nd IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), 2017.
- Journal of Visualization, 2016.
- International Journal of Network Management, 2016.
- 2nd International Workshop on DAta mining meets Visual Analytics at Big Data Era (DAVA), 2016.
- IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2016.
- IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), 2016.
- Journal of Security and Communication Networks, John Wiley & Sons, Ltd., 2015.
- International Workshop on DAta mining meets Visual Analytics at big data era (DAVA), 2015
- IEEE Systems Journal - Special Issue: Traffic Forensics, 2014.
- MDPI Journal of Sensors, 2014.
- IEEE GLOBECOM - Communication & Information System Security (CISS) Symposium, 2014
- IEEE ICCCN First International Workshop on Hot Topics in Big Data and Networking, 2014.
- Journal of Security and Communication Networks, John Wiley & Sons, Ltd., 2013 & 2014.
- International Journal of Computer & Information Science (IJCIS), 2013.
- International Journal of Networked and Distributed Computing (IJNDC), 2012-2013
- International Conference on Computing, Networking and Communications (ICNC 2012) – Internet Services and Applications Symposium
- Journal of Security and Communication Networks, John Wiley & Sons, Ltd. (2011)
- The 41st Annual Frontiers in Education (FIE) Conference (FIE 2011)
- The 40th Annual Frontiers in Education (FIE) Conference (FIE 2010)
- IEEE International Parallel & Distributed Processing Symposium (IPDPS 2010)
- The Sixth International Conference on Broadband Communications, Networks, and Systems (BROADNETS 2009)
- The 18th International Conference on Computer Communications and Networks

- (ICCCN 2009)
- The 17th International Conference on Computer Communications and Networks (ICCCN 2008)

Technical Program Committees (TPC)

- IEEE International Conference on Cyber Security and Resilience (CSR), 2025.
- IEEE International Conference on Cyber Security and Resilience (CSR), 2024.
- The 3rd IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), Chengdu, China, 2018.
- The 2nd IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), Chengdu, China, 2017.
- IEEE International Conference on Internet of Things, Embedded Systems and Communications (IINTEC), Gafsa, Tunisia, 2017.
- The 2nd International Workshop on DATA mining meets Visual Analytics at Big Data Era (DAVA) in conjunction with 25th ACM International Conference on Information and Knowledge Management (CIKM'16), Indianapolis, Indiana, October 28, 2016.
- IEEE International Conference on Cloud Computing and Big Data Analysis (ICCCBDA), Chengdu, China, July 5-7, 2016.
- International Workshop on DATA mining meets Visual Analytics at big data era (DAVA), Atlantic City, New Jersey, November 14, 2015.
- IEEE GLOBECOM - Communication & Information System Security (CISS) Symposium, Austin, Texas, December 8-12, 2014.
- IEEE ICCCN workshop: the First International Workshop on Hot Topics in Big Data and Networking, Shanghai, China, August 7, 2014.
- International Conference on Computing, Networking and Communications (ICNC), Maui, Hawaii, January 30 - February 2, 2012.
- ACIS International Symposium on Software and Network Engineering (SSNE), Seoul, Korea, December 19-20, 2011.
- The 3rd International Workshop on Hot Topics in Peer-to-peer computing and Online Social neTworking (HotPOST'11), Tainan, Taiwan, December 7, 2011.
- The 2nd International Workshop on Peer-to-Peer Networking (P2PNet) in conjunction with ICPADS 2010, Shanghai, China, December 8, 2010.

Conference Organization

- Organizer and Publicity Chair – The First International Workshop on Hot Topics in Big Data and Networking (HotData), held in conjunction with The 23rd International Conference on Computer Communications and Networks (IEEE ICCCN), Shanghai, China. August 4-7, 2014

Session Services

- Session Chair, Session 14: Traffic, Algorithm and Applications, 23rd IEEE International Conference on Computer Communications and Networks (ICCCN) - HotData Workshop, August 4-7, 2014.
- Session Chair, Session AB5 Link and Graph Mining, IEEE International Conference on Big Data (IEEE BigData), Santa Clara, CA, October 6-9, 2013.
- Wrote technical session summary for the ACM journal Computer Communication Review (CCR) on the ACM SIGCOMM 2011.
- Wrote technical session summary for the USENIX magazine *login* on the LISA 2008.

Judges

- The 4th District of Michigan for the Congressional App Challenge, 2019.
- Northern Indiana Regional Science & Engineering Fair, 2010.

Central Michigan University (CMU)

University and College

- CSE College Student Affairs Committee, 2024.
- CSE College Grade Grievance/Academic Dishonesty Committee, 2023.
- Committee on Committees, College of Science and Engineering (CSE) representative 2020 - 2023.
- CMU Library Faculty Book Recognition Review Committee, 2020.
- Academic Senate: Library Committee, faculty representative 2019 - 2022.
- Academic Senate: Degrees, Admissions, Standards, and Honors Committee (DASH) 2015 - 2018.
- Academic Senate: Senator representing the Department of Computer Science 2014.
- Academic Senate: Library Committee, faculty representative 2014 - 2017.
- Academic Senate: International Education Council (IEC), College of Science & Technology representative 2012 - 2014.
- College of Science and Technology (CST) Research & Graduate Programs Committee – Department of Computer Science (CPS) representative. 2014 - 2016.
- Member of Faculty Technology Advisory Committee (FTAC) March 2012 - 2016.
- CMU Science, Technology, Engineering, and Math (STEM) Day July 29, 2016.
- CMU & You Day September 12, 2015
- CMU Science, Technology, Engineering, and Math (STEM) Day July 31, 2015.
- CMU Science, Technology, Engineering, and Math (STEM) Day June 21, 2013.
- Science, Technology, Engineering, and Math (STEM) Day August 3, 2012.
- Science, Engineering and Technology Day (SET) Day July 15, 2011
- CMU & You Day October 1, 2011

Department

- Hiring / Search Committee (chair) 2018 - 2022
- Hiring / Search Committee 2012 - 2014, 2022 - present
- Cybersecurity new major program planning, curriculum development and coordination 2018 - present
- Faculty Advisor for International Students (OPT/CPT) 2015 - present
- Computer Science Curriculum Committee 2021 - 2022
- Internationalization Committee (chair) 2018 - 2020
- By Laws Committee 2019 - 2022
- Personnel Committee 2016 - present
- Undergraduate Student Faculty Advisor (Major/Minor) 2013 - 2017, 2019 - 2022
- Library Liaison 2014 - 2021
- Fixed-term Faculty Hiring Adhoc Committee 2022 - 2023
- Cybersecurity Program Committee 2016 - 2017
- Degree Program (BS-ITC) Curriculum Review Committee 2016 - 2017
- Graduate Application and Dean's Research Assistant (RA) Award Selection Committee 2016
- Faculty Release Time Ad-Hoc Committee 2014 - 2015, 2020 - 2021

Memberships

- IEEE Member (Institute of Electrical and Electronics Engineers)
- IEEE ComSoc (Communications Society)
- IEEE VGTC (Visualization and Graphics Technical Community)

MEDIA COVERAGE

How can you protect your privacy, money from AI? Expert explains the cybersecurity arms race focused on your data. – CMU News, March 25, 2025, Author: Eric Baerren, Media Contact: Aaron Mills.

What Happens If TikTok Shuts Down? Here's Everything We Know. – HUFFPOST, January 17, 2025, Author: Monica Torres.

What would happen to TikTok on my phone if the app is banned? – CBS News, January 14, 2025, Author: Megan Cerullo.

Will TikTok users be able to access the app after a potential ban? Experts explain - A majority of justices on the Supreme Court appear inclined to uphold the ban. – ABC News, January 11, 2025, Author: Max Zahn.

CMU undergraduate harnesses AI to simplify cybersecurity testing – CMU News, October 23, 2024, Author: Robert Wang.

Congress seems poised to pass potential TikTok ban in US. How would it work? – ABC News, April 22, 2024, Author: Max Zahn.

Embracing artificial intelligence: How AI could be a powerful tool in northern Michigan – NBC TV News (WPBN/WGTU), November 8th, 2023, Evening Anchor: Miya Ingle.

'Uncharted territory': How would a TikTok ban in the US work? Users could get around the ban but TikTok's audience would shrink, experts said. – ABC News, March 18, 2023, Author: Max Zahn.

What are the main security concerns surrounding TikTok? Computer Science Professor Provides Insight, Featured CMU News Stories (also published in various newspaper, e.g., Morning Sun, BostonHerald, DailyLocalNews, etc.), March 10, 2023, Author: Eric Baerren, Media Contact: Aaron Mills.

Cybersecurity - New Program. College of Science of Engineering, Central Michigan University, Library Display, 2022-2023.

The importance of cybersecurity and its booming job market - Featured CMU News Stories (also published in newspaper such as Morning Sun), October, 5, 2022, Author: Logan Pellegrum.

The importance of cybersecurity and its booming job market - Cybersecurity is one of the most in-demand job markets in the U.S. in 2022. College of Science and Engineering Magazine, Spring 2023.

Citizen's Academy Graduates New Class, Mt. Pleasant City Annual Report 2022.

2017's states most vulnerable to identity theft and fraud (CMU faculty member Qi Liao included), OurCMU, The latest campus and community news, Oct. 19, 2017.

Ask the experts - 2017's States Most Vulnerable to Identity Theft & Fraud, October, 2017, Senior Editor John Kiernan, WalletHub, Washington, DC.

The Spectrum, newsletter of College of Science and Technology, Spring 2013 edition.

Library display of faculty research poster, Spring 2013.

Liao's research recognized at IEEE VisWeek in Seattle, Department of Computer Science News and Events, November 7, 2012.

Professional Notes, e-Tower Times, Hartwick College, December 2012, contact Christopher Lott.

The Wick - The Magazine of Hartwick College, Spring 2012.

Blaich and Liao Place Second at NSIC, printed Configurations - A Newsletter of the Department of Computer Science and Engineering at the University of Notre Dame, #9 June 2009.

Graduate students fare well in national security innovation competition, University of Notre Dame News and Information, May 19, 2009, reported by Nina Welding.

CSE Students Blaich and Liao Place Second at National Security Innovation Competition, Notre Dame Computer Science and Engineering News, May 14, 2009, per the NSIC 2009 Press Release.

National Security Innovation Competition Winners Announced, Colorado Homeland Defense Alliance News, May 5, 2009, contact Amy Sufak.

Liao Wins USENIX Award for Computing Paper, Hartwick College News & Events January 12, 2009, reported by Jennifer Moritz.

OTHER
PROFESSIONAL
EXPERIENCE

Project Manager, SCFT/BCFT, Shanghai, China 1996-2001

- Promoted establishment of business of several international capital investment projects in over 20 major cities in China through license obtaining, merger and acquisition, favorable government policy lobbying, and market research.
- Helped many major foreign (mainly US & European) investors such as in catering industry (Compass Group/Eurest, Pepsico/KFC, etc.) and environment protection sectors (landfill recycling and carbon emission credits, etc.) through our know-how of doing business in China.

TECHNICAL
SKILLS

Major Programming Languages

- Java, Python, C#, C/C++, VB.

Other Programming Languages and Web Application Technologies

- HTML/XHTML, XML/DOM/SAXP, CSS/XSLT, Oracle and MySQL programming, JDBC, JavaScript, LAMP (PHP, Perl, Python), Servlets, JSP (scriptlets/JSTL), Ruby on Rails and Ajax.

Other Applications

- Microsoft Office, Matlab, Windows/Linux/Solaris applications.

TRAINING /
COMMUNITY
INVOLVEMENT

Red Cross Certification

- Certified in First Aid, American Red Cross
- Certified in Adult CPR/AED, American Red Cross
- Certified in Pediatric CPR/AED, American Red Cross

MSF Basic/Advanced Riders Courses

Michigan CPL Training

Citizen's Police Academy, Central Michigan University, Michigan

Citizens' Academy, City of Mt. Pleasant, Michigan

MISCELLANEOUS

Natural Languages

- English (fluent)
- Chinese (native)
 - Mandarin, Shanghainese, Cantonese

VERSION

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